Arkansas **Grade 7**

FlyBy Math™ Alignment
Arkansas Mathematics Curriculum Framework

Strand: Algebra

Standard 4: Patterns, Relations and Functions
Students shall recognize, describe, and develop patterns, relations and functions

Student Learning Expectation	***FlyBy Math*™ Activities**
A.4.7.2 Identify and extend patterns in real world situations	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Standard 5: Algebraic Representations
Students shall represent and analyze mathematical situations and structures using algebraic symbols

Student Learning Expectation	***FlyBy Math*™ Activities**
A.5.7.2 Solve simple *linear equations* using *integers* and graph on a *coordinate plane* Ex. use a T chart	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.

Standard 6: Algebraic Models
Students shall develop and apply mathematical models to represent and understand quantitative relationships

Student Learning Expectation	***FlyBy Math*™ Activities**
A.6.7.1 Use tables and graphs to represent *linear equations* by plotting, with and without appropriate *technology*, points in a *coordinate plane*	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
A.6.7.2 Represent, with and without appropriate *technology*, *linear equations* by plotting and graphing points in the *coordinate plane* using all four *quadrants* given data in a table from a real world situation	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
A.6.7.3 Create and complete a *function table* (*input/output*) using a given rule with two operations in real world situations	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Standard 7: Analysis of Change **Students shall analyze change in various contexts**	
Student Learning Expectation	***FlyBy Math™* Activities**
A.7.7.1 Use, with and without appropriate *technology*, tables and graphs to compare and identify situations with constant or varying *rates* of change	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Compare airspace scenarios for both the same and different starting conditions and the same and different rates.

Strand: Geometry

Standard 10: Coordinate Geometry **Students shall specify locations and describe spatial relationships using coordinate geometry and other representational systems**	
Student Learning Expectation	***FlyBy Math™* Activities**
G.10.7.1 Plot points in the *coordinate plane*	--Plot points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system to describe the motion of two airplanes and predict outcomes

Strand: Measurement

Standard 12: Physical Attributes **Students shall use attributes and tools of measurement to describe and compare mathematical and real-world objects**	
Student Learning Expectation	***FlyBy Math™* Activities**
M.12.7.1 Understand, select and use the appropriate units and tools (metric and customary) to measure length, weight, *mass* and *volume* to the required degree of accuracy for real world problems	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.
Standard 13: Systems of Measurement **Students shall identify and use units, systems and processes of measurement**	
Student Learning Expectation	***FlyBy Math™* Activities**
M.13.7.1 Solve real world problems involving two or more *elapsed times*, counting forward and backward (calendar and clock)	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.

Strand: Data Analysis and Probability	
Standard 14: Data Representation **Students shall formulate questions that can be addressed with data and collect, organize and display**	
Student Learning Expectation	***FlyBy Math™* Activities**
DAP.14.7.2 Explain which types of display are appropriate for various data sets (*line graph* for change over time, *circle graph* for part-to-whole comparison, *scatter plot* for trends)	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
AP.14.7.3 Construct and interpret *circle graphs, box-and-whisker plots, histograms, scatter plots* and *double line graphs* with and without appropriate *technology*	--Represent distance, rate, and time data using line plots, bar graphs, and line graphs. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
Standard 15: Data Analysis **Students shall select and use appropriate statistical methods to analyze data**	
Student Learning Expectation	***FlyBy Math™* Activities**
DAP.15.7.1 Analyze data displays, including ways that they can be misleading	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions. --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.